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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/979,566 | 06/28/2002 | Alison Mary Fairhurst | 1084-011969 | 2819 |
| 7590 03/23/2005 | | | EXAMINER | |
| Kent E Baldauf 700 Koppers Building 436 Seventh Avenue Pittsburgh, PA 15219-1818 | | | WANG, GEORGE Y | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2871 | |

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/979,566

Applicant(s)

FAIRHURST ET AL.

Examiner

George Y. Wang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-15,20,35-37 and 39-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-15,20,35-37 and 39-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 June 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 15, 2004 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claim 11 is rejected under 35 U.S.C. 102(b) as being anticipated by Goto et al. (U.S. Patent No. 6,392,726, from hereinafter "Goto").

Goto discloses an LCD (fig. 5, ref. 51) incorporating a light-transmitting layer (fig. 5, ref. 55), where one side of the layer has a surface relief or texturing to eliminate or reduce reflections and forms the surface of the display which is closest to the viewer (fig. 5, ref. 12).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 15 and 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goto in view of Myers (U.S. Patent No. 6,443,579, from hereafter "Myers").

6. As per claim 15, Goto discloses the LCD device as recited above with a light-transmitting layer, however, the reference fails to specifically disclose a light-transmitting material characterized by refractive index variations forming light-deviating features imparting bulk light-diffusing properties to the material.

Myers discloses a light-transmitting layer for LCDs characterized by refractive index variations forming light-deviating features imparting bulk light-diffusing properties to the material (col. 4, lines 8-29).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a light-transmitting layer characterized by refractive index variations forming light-deviating features imparting bulk light-diffusing properties to the material since one would be motivated to achieve the same effect as a Fresnel lens, ultimately causing light to produce a wide range of angles that exit in parallel so that the use of diffusers would be eliminated (col. 4, lines 8-29).

7. As per claim 39 and 40, Goto discloses an LCD cell (fig. 6, ref. 60A) with upper (fig. 6, ref. 63) and lower (fig. 6, ref. 62) transparent plates superimposed on a plate having a first and second body of light-transmitting material (fig. 6, ref. 13) having a planar upper face parallel with the upper and lower plates of the LCD cell and having a Fresnel-stepped or ramped lower surface, the plate being disposed between the LCD

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cell and a backlighting (fig. 6, ref. 11) assembly arranged to direct light towards the cell perpendicularly

However, the reference fails to specifically disclose ambient light incident on the LCD cell at an angle to the perpendicular to the upper and lower plates and passes through the cell to the plate to be reflected by a semi-reflective or transflective coating.

Myers discloses light-transmitting material (fig. 4, ref. 20, 21) with a Fresnel-stepped lower surface which is provided with a semi-reflective or transflective coating where ambient light is incident on the LCD cell at an angle to the perpendicular to the upper and lower plates and passes through the cell to the plate to be reflected by the semi-reflective coating (col. 4, lines 8-28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have ambient light incident on the LCD cell at an angle to the perpendicular to the upper and lower plates and passes through the cell to the plate to be reflected by a semi-reflective or transflective coating since one would be motivated to provide a privacy screen by eliminating or reducing reflections in order to restrict the field-of-view for improved private viewing (col. 1, lines 46-57). Furthermore, it would also improve or modify images from undesired effects to optimize image quality (col. 7, lines 15-34) as well as eliminate the need for a diffuser by using light-deviating features to impart bulk light-diffusing properties that causes light to produce a wide range of angles that exit in parallel (col. 4, lines 8-28).

8. Claims 12-13, 20, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gunjima et al. (U.S. Patent No. 5,587,816, from hereafter "Gunjima") in view of Myers (U.S. Patent No. 6,443,579, from hereafter "Myers").

Gunjima discloses an LCD, however, the reference fails to teach a light-transmitting layer (fig. 4, ref. 20, 21), where one side of the layer has a surface relief or texturing to eliminate or reduce reflections, and where the other side of the layer is stepped or ramped to form a Fresnel refracting arrangement.

Myers discloses a light-transmitting layer (fig. 4, ref. 20, 21), where one side of the layer has a surface relief or texturing to eliminate or reduce reflections, and where the other side of the layer is stepped or ramped to form a Fresnel refracting arrangement (col. 4, lines 8-28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have an LCD with the incorporation of a light-transmitting layer, where one side of the layer has a surface relief or texturing, and where the other side of the layer is stepped or ramped to form a Fresnel refracting arrangement since one would be motivated to provide a privacy screen by eliminating or reducing reflections in order to restrict the field-of-view for improved private viewing (col. 1, lines 46-57). Furthermore, it would also improve or modify images from undesired effects to optimize image quality (col. 7, lines 15-34) as well as eliminate the need for a diffuser by using light-deviating features to impart bulk light-diffusing properties that causes light to produce a wide range of angles that exit in parallel (col. 4, lines 8-28).

9. Claims 14, 36-37, and 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gunjima in view of Myers and in further view of Goto.

10. As to claims 14 and 36, Gunjima, when modified by Myers, discloses the LCD as recited above. However, the reference fails to specifically disclose individual portions or facets of the stepped or ramped side as being convexly or concavely curved.

Goto discloses an LCD with a light-transmitting layer having individual portions or facets of the stepped or ramped side as being convexly or concavely curved (fig. 1, ref. 55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have individual portions or facets of the stepped or ramped side as being convexly or concavely curved since one would be motivated to provide a lenticular lens surface by which light can not only exit but ultimately provide images with higher resolution (col. 5, lines 60-67; col. 6, lines 13-18).

11. Regarding claims 37, Gunjima, when modified by Goto, discloses the LCD device as recited above with a light-transmitting layer, however, the reference fails to specifically disclose a light-transmitting material characterized by refractive index variations forming light-deviating features imparting bulk light-diffusing properties to the material.

Myers discloses a light-transmitting layer for LCDs characterized by refractive index variations forming light-deviating features imparting bulk light-diffusing properties to the material (col. 4, lines 8-29).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a light-transmitting layer characterized by refractive index variations forming light-deviating features imparting bulk light-diffusing properties to the material since one would be motivated to achieve the same effect as a Fresnel lens, ultimately causing light to produce a wide range of angles that exit in parallel so that the use of diffusers would be eliminated (col. 4, lines 8-29).

12. As to claim 41, Goto and Myers discloses the LCD cell as recited above, however, the references fail to specifically disclose a second body of light-transmitting material that is the same reflective index as the first body.

Gunjima discloses the LCD as recited above with a second body of light-transmitting material that is the same reflective index as the first body (col. 21, lines 6-14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a second body of light-transmitting material that is the same reflective index as the first body since one would be motivated to provide a display with enhanced intensity of light while maintaining a wide light direction distribution (col. 2, lines 57-67). Furthermore, such an improvement contributes to the promotion of the illuminance for direct viewing (col. 3, lines 1-3).

Response to Arguments

13. Applicant's arguments with respect to claims 11-15, 20, 35-37, and 39-41 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's main arguments are directed towards the rejections made with the Gunjima and Van de Ven references. However, in light of the new grounds of rejection above, Applicant's arguments bear no merit since the references used are not all the same.

Conclusion


14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Y. Wang whose telephone number is 571-272-2304. The examiner can normally be reached on M-F, 8 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gw
March 17, 2005


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